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# PRACTICAL OBSERVATIONS

ON THE

# *TREATMENT*

OF

# STRICTURE OF THE URETHRA.

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By MR. URE.

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[*From the London Medical Gazette.*]

# PRACTICAL OBSERVATIONS,

*&c.*

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By stricture is meant such a morbid contraction of the urethra in one or more points as impedes or obstructs the flow of urine.

The canal of the urethra has, in the natural state, a diameter of about four lines nearly all its length ; but its orifice is usually narrower, being only two-and-a-half or three lines in diameter.

Strictures have been divided into two kinds: the one spasmodic or inflammatory, susceptible of spontaneous resolution; the other chronic, depending on organic change. The latter present every variety of texture, from simple swelling of the mucous membrane to callous thickening consisting of dense gristly-like substance. The most common form is that which resembles the effect of a thread tied round the canal; though by irritation or improper treatment, it will ere long pass into the indurated state just described.

The more prominent local symptoms of the chronic variety are—a slight discharge of matter from the urethra, and a frequent desire to evacuate the urine, which issues in drops, or in a forked, twisted, wiry, or thread-like stream.

As a great proportion of the fatal diseases of the bladder may be traced to this source, I have been induced to draw up the following observations, with the view of pointing attention to certain modes of treatment in which, perhaps, some novelty may be found.

I. *Of dilatation.* — This plan is adapted to the majority of cases, and deserves the preference whenever it is practicable. Its application, however, requires both skill and consideration, much more, indeed, than is commonly supposed.

When a bougie or sound is introduced along the urethra, it determines, independently of any mechanical operation, a distinct physiological effect, characterized in the first instance by a modification of the sensibility, a quickening of the capillary circulation, attended with augmented secretion ; but afterwards by subsidence of irritation, and restoration of the healthy condition of the part. The process of methodical dilatation ought to be conducted as gradually and cautiously as possible, commencing with slender gum-elastic or catgut bougies, which will pass through the stricture without producing pain or hæmorrhage. M. Beniqué has devised the following ingenious method of penetrating narrow, and otherwise impervious, strictures*. He employs a curved metallic tube (*b*), whose anterior extremity is a little widened, in order to give in that point adequate thickness

* De la Rétention d'Urine, p. 14.

to the metal. A mandrel (*c*), accurately adjusted, converts the end of the tube into a smooth and rounded sound, presenting no inequalities capable of injuring the passage it has to traverse.

Whenever the stricture offers to the sound such resistance as moderate pressure will not overcome, it is to be there fixed, the contained mandrel withdrawn, and replaced by a bundle of parallel bougies, the number of which will be greater, and the diameter smaller, in proportion to the development of the stricture. As soon as the end of this bundle meets the obstacle, we keep the tube with one hand in the same position, while with the other we endeavour to push gently one of the bougies forwards through the stricture. Should the first fail, we try the rest in succession, till we accomplish the desired object. This done, we draw out the rest of the bundle, and then the metallic tube. The bougies ought to project four or five inches from the external orifice of the tube, to allow freedom of manipulation.

In this way a bougie has been presented to every point of the opposing surface, without subjecting the patient to annoyance from necessity of repetition. When the stricture resembles a cone, whose base is directed towards the meatus, and whose truncated apex gives exit to the urine, M. Beniqué replaces the mandrel, not with a bundle, but with one, or at most two bougies. The chief advantage of this plan is its counteracting the resiliency of the bougie.

The annexed figures represent the application of the instrument.

At first, especially with irritable subjects, the introduction of a bougie should be only momentary, though it may afterwards be prolonged to a few minutes. Having derived the full benefit from the use of the more slender instruments, others should be passed commensurate in size with the progress of dilatation. Bougies that are cylindrical to within about an inch from the extremity destined to enter the bladder answer well; but when the stricture is situate in, or beyond the bend of the urethra, the gum-elastic sounds, *à courbure naturelle*, are preferable, as they are not susceptible of injuring the urethra. The temporary dilatation, performed at suitable intervals, is more beneficial than the permanent, recommended by several eminent surgeons. For when a bougie is too frequently introduced, or too long kept in, the urethra, constantly irritated by the presence of a foreign body, re-acts, and renders nugatory the effects of treatment.

Fig. 1. Fig. 2.

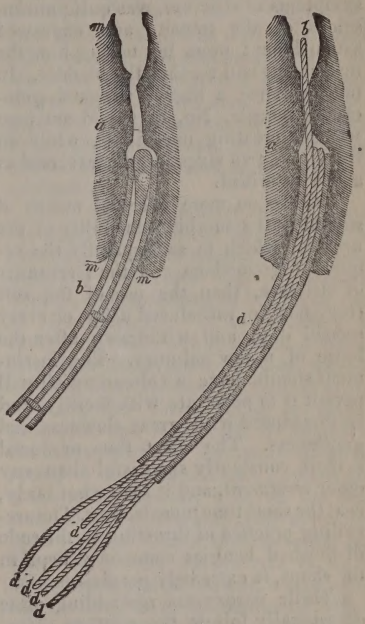



Fig. 1. — *m*, *m*, *m*, Section of a stricture whose orifice, *a*, is not situated in the centre of the canal.
*b*, A metallic canula, closed by a moveable obturator, *c*.

Fig. 2.—The obturator has been taken out, and replaced with a bundle of small catgut bougies, *d*, *d*, *d*, *d*. Each has been individually advanced in succession; one of them, *b*, having penetrated the stricture, has passed beyond it.

In many instances the persevering use of these instruments will effect a perfect cure in a few weeks; in other cases months will elapse ere the patient derives the wished-for relief. One of the best means of accomplishing the dilatation is by the softened ivory bougies, which I was led to try at the suggestion of Dr. Güterbock, of Berlin. These, consisting of condensed gelatine, are somewhat elastic, and extremely tough, so that there is no risk

of their breaking. They present the essential attributes of a bougie in the highest possible degree. Nothing can exceed their pliancy and lubricity; and the ease with which they glide along the urethra is very remarkable. A field-officer, for whom I have employed them with success in relieving the incipient symptoms of stricture, was quite unconscious of the transit, and expressed astonishment upon my telling him the instrument had reached the bladder. In this instance a highly polished gum-elastic bougie, No. 4, would not pass without creating uneasiness, while an ivory one, two sizes larger, traversed as above described.

There is no more effectual means of subduing the morbid sensibility of the urethra, which is so frequently the sequel of gonorrhœa and the forerunner of stricture, than the use of the soft ivory bougie, introduced daily, or every second day, and withdrawn after the lapse of a few minutes. The instrument should have a volume which will permit it to penetrate with facility, and be introduced with great slowness and gentleness. The effect thus produced is more constantly successful than any other treatment, and if somewhat tardy, is at the same time more lasting. The prevailing practice of thrusting in the rude ill-finished bougies commonly kept in the shops, is extremely pernicious.

Febrile paroxysms resembling ague occasionally follow the passage of instruments into the urethra; these may be prevented by leaving one of the soft ivory catheters in the bladder. This may be worn for days without the patient being scarcely conscious of its presence. It is, moreover, less prone to become encrusted with urinary deposits than those made of gum-elastic or metal*.

M. Civiale advises, in order to avoid, during our manipulations, the mucous lacunæ, which, he says, for the most part occupy the dorsal surface of the canal, to press the end of the instrument, especially if it be small, to one or other side, or towards the inferior than the superior surface†. This counsel is directly the reverse of what is commonly prescribed.

I need scarcely observe, that the presence of active inflammation contra-indicates all instrumental interference. Stricture depending on this cause must be combated by abstraction of blood, opiates, and the warm bath. Tampering with bougies aggravates the symptoms and tortures the patient.

II. *On the application of nitrate of silver.*—Every surgeon conversant with the treatment of stricture must have occasionally met with cases where mechanical dilatation, however long continued, or skilfully performed, has failed to effect a cure. Many of these may be radically overcome by the judicious application of nitrate of silver. The method of lateral cauterization, as originally proposed by Ducamp, in the year 1822, and the subsequent modifications introduced into this system by M. Lallemand, are objectionable, because they involve the risk of the escharotic acting upon sound parts*. The cauterization supposed to have been performed upon the internal surface of the stricture, observes M. Civiale†, has been only expended upon a spot anterior to it. If the instrument be pushed with force, or made to execute repeated movements of rotation, its extremity injures and perforates the sides of the urethra. Hence the numerous false passages that have been discovered; hence the attacks of hæmorrhage, often sufficiently copious to awaken the utmost anxiety and alarm‡. Besides, the *cuvette*, in many instances, does not slide forwards, and thus the contained nitrate, instead of being concentrated upon the stricture, dissolves, and combines with the mucus, in which the conductor is bathed. The effect is then null, or nearly so; for while the greater portion of the solution is lodged in the tube, the remainder comes in contact with merely the anterior part of the urethra. The

* These instruments are prepared by removing the earthy constituents of ivory. Before being used they ought to be immersed for several hours in water, and well smeared over with cerate. They are not expensive.

† Traité sur les Maladies des Organes Genito-urinaires, p. 200.

* Leroy, in Bulletin de l'Académie Royale de Médecine. tom. iii. p. 256.

† Op. cit. p. 234.

‡ At page 36 of M Lallemand's work, entitled "Observations sur les Maladies des Organes Genito-urinaires," we find a case recorded, in which "acute pain, accompanied with frequent calls to void urine, hæmorrhage, and constriction of the sphincters of the anus," followed the introduction of his port-caustic; and in the Sixth Observation, that "urgent desire to evacuate the contents of the bladder, with complete retention, prolonged and violent rigors, and acute pain about the bladder and kidneys" ensued, in consequence of cauterizing a healthy part of the urethra.

practitioner in this way, contrary to his intention, operates from before backwards. Hence the disease is often materially aggravated and rendered incurable; the frequent repetition of the practice giving rise to an irregularly thickened state of the parietes of the canal, sometimes pervading the greater part of its extent. This is attended with a troublesome discharge of matter; and paroxysms of agonizing pain referred to the neck of the bladder, the prostate gland, the spermatic cord, or the testicles, whereby the patient is rendered miserable for the remainder of his days.

To obviate these serious objections various improvements have been suggested in the construction of instruments, among which we would enumerate those of M. Pasquier and of M. Leroy d'Etiolles, as being well adapted for effecting the application with safety and precision.

As it is essential, in the first instance, to obtain a correct knowledge of the nature, extent, and situation of the stricture, I shall describe the method, *par empreinte*, as now generally practised in Paris*. A yellow wax bougie, having an equivalent volume to the width of the stricture (as nearly as can be estimated), is to be passed along the urethra into the bladder. It should be grasped by the stricture, but not forcibly. In general these soft bougies can be introduced with considerable facility. In the event of failure, a slight preliminary dilatation may be procured by means of the slender gum-elastic bougies formerly mentioned. Having reached its proper destination, the soft bougie is left *in sitû* for the space of ten or fifteen minutes, after which it is withdrawn by a quick movement. The part which had been grasped by the stricture will be found to present a corresponding mark, amounting sometimes to a notch, sometimes to a mere dimple, scarcely visible to the naked eye, but which may be detected by gliding the finger along its surface. According to the form and situation of this impression, we are enabled to determine the dimensions and direction of the stricture, and also its distance from the orifice of the urethra. Nor are we liable to receive a fallacious indentation from the natural curve of the urethra under the pubis, from lacunæ or false passages, or to mistake a spasmodic for an organic stricture, as has occasionally happened with other emplastic instruments.

M. Leroy employs for the exploration graduated bougies of gum-elastic, terminating in a round knob, on the principle of Sir C. Bell. These may enable us to recognize well the valvular folds of the mucous membrane; but when the lateral projection is but a fraction of the transverse area of the tube, and the stricture terminates posteriorly in an elongated cone, the indications will be less precise and more difficult of attainment.

After this preliminary investigation, we may, provided the stricture has an area of a line or a line and a half, introduce the port-caustic with its platinum *cuvette*, corresponding in length to that of the stricture. It is necessary in every case that there should be a partial dilatation beforehand. When we are satisfied that the tube has arrived at the obstacle, the *cuvette* is to be slowly protruded and then fixed by means of the screw, with the nitrate of silver directed to the affected part; where the stricture is annular, it is, on the contrary, to be left free, and made to revolve upon its axis. After this operation has lasted a minute, the *cuvette* is to be drawn back into its sheath, which, with the urethra, is to be depressed before removal. By this manœuvre the mucus, should it contain any portion of dissolved nitrate, will flow into the tube; thus all risk of its irritating the healthy surface is prevented. The application so conducted is productive of little or no uneasiness, not more than follows the introduction of an ordinary bougie.

The annexed figure (3) represents the two ends of the instrument in question: *c*, *d*, are the extremities of the elastic tube; *b*, the head of platinum or gold, fastened by a pin; *e*, the metallic tube attached to the other end of the elastic one; *f*, the screw passing through both tubes; *a*, the platinum spoon or *cuvette* upon its thin elastic stem, which plays freely within the tube *c*, *d*, and whose other end *g* is continued into *h*, a quadrilateral rod upon which the screw *f* can be made to press.

The instrument recommended by Mons. Leroy for the retrograde application, consists of a curved tube, *a*, *a*, fig. 4, made of silver, or of gum elastic,

* This method is by no means new, a description of it being given in Lemonnier's Traité sur la Maladie Vénérienne, printed in 1689.

Fig. 3.

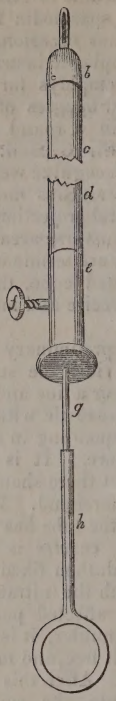
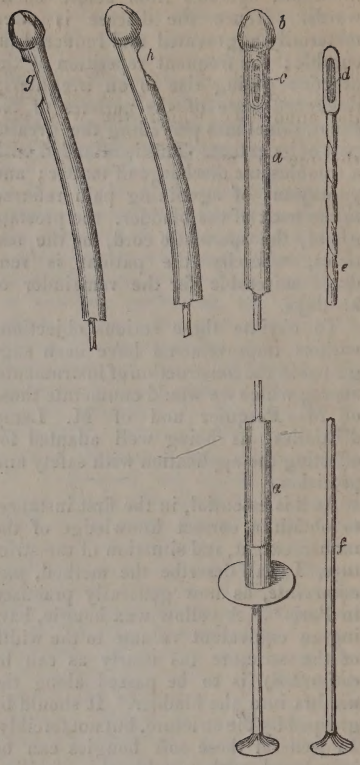



Fig. 4.




surmounted like his exploratory bougies, with a small knob *b*, close to which is an elongated aperture, *c*, about half an inch in length, for the purpose of allowing the contents of the *cuvette* to come in contact with the stricture. The *cuvette*, *d*, which is nearly half an inch long, is attached by one extremity to a silver rod, *e*, *f*, about ten inches long, whereof three and a half inches, *e*, is spiral, in order to impart flexibility and the power of rotation in a curve. The above part, instead of being spiral, is sometimes chain-work. A silver canula is preferable to one of gum-elastic, as the *cuvette* is apt to tilt out of the eye of the latter, and do mischief. The instrument is to be introduced beyond the most remote stricture, and then partially withdrawn, until the knob, *b*, is felt to hitch against the distant margin. The *cuvette* containing the fused nitrate of silver, inserted with its convex metallic surface to the notch, is then to be turned round till the nitrate faces the stricture; it is to be thus retained for a minute, and straightway restored to its former position, and removed with its canula. The operator must be provided with two separate canulas, one having a superior, the other an inferior aperture, to suit the direction of the stricture. In every case we ought to be quite certain that we have passed the extreme obstacle, before the nitrate of silver is permitted to act.

Immediately after the application has been made, the patient voids urine better than before; but on the day following there sometimes ensues a degree of retention, from closure of the canal by a plug of coagulated mucus. This is easily removed by injecting a little tepid water from a gum-elastic syringe, furnished with a long, narrow, softened ivory tube. The introduction of a bougie for this purpose is both painful and hazardous. About the second or third day, some sloughy shreds are voided along with the urine. We have now to repeat the passing of the soft bougie, to ascertain whether the stricture be completely overcome; persevering in

the use of the nitrate of silver till no trace is left upon the wax. We may even determine this by the relative facility with which an ivory bougie passes along; and if so, we spare the patient the annoyance which the wax may cause while traversing the under part of the mucous membrane. It is seldom that a single application suffices; in the majority of cases, it must be renewed at intervals of four or five days for some weeks, until a No. 6 bougie will pass. But we must be guided by the result, discontinuing the practice whenever we perceive that the patient ceases to derive benefit; otherwise its protracted use cannot fail to do harm *.

As a general rule, the application ought to be confined to cases in which the stricture is of limited extent. Where there is general callous thickening, it is inappropriate. It is not intended that the nitrate of silver should destroy the stricture, as may happen; it merely induces some change in the vital actions of the part, which is followed by relaxation of the narrowed portion. No satisfactory explanation has yet been offered of its *modus operandi*.

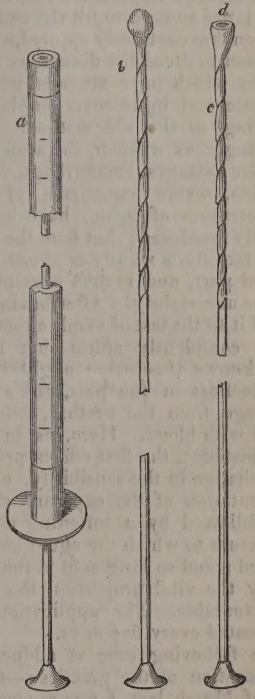
We usually remark, soon after its employment, a mucous or purulent discharge, which commonly subsides, of its own accord, in a few days. In some rare instances, the gleet which had previously accompanied the stricture becomes greatly increased in quantity, and continues so for a considerable time. More generally, however, chronic discharges of long standing disappear entirely upon its removal.

To complete the cure, ivory bougies, or gum-elastic sounds, having the natural curvature, ought for some time to be daily introduced for a few minutes, progressively augmenting in size till we come to a diameter of $2\frac{1}{2}$ or 3 lines. By and by they may be passed twice a week, and ultimately every eight or ten days. The subsequent dilatation is always necessary to protect against a relapse.

There is another form of stricture, in which the urine may percolate through the obstacle, while even capillary bougies cannot be introduced, or, if so, but partially, penetrating, as it were, a spongy mass, and giving rise to hæmorrhage. Here we must have recourse to the *direct* application of nitrate of silver, on the principle recommended by Ambrose Paré, and afterwards adopted by Mr. Hunter and his follower, Sir Everard Home, but practised in a much improved manner *.

The instrument I have found best suited for this purpose was first shewn to me by M. Leroy d'Etiolles, along with several other ingenious contrivances for the treatment of urethral diseases. It does not differ materially from that of M. Labat. It consists of a flexible canula (*a*, fig. 5), graduated into

Fig. 5.




inches and fractions of an inch, surmounted by a platinum ferrule, and of two silver rods, partly spiral, whereof one (*b*) terminates in an oblong knob,

* For ulceration of the mucous membrane of the urethra, characterized by pain experienced in particular points of the canal during the passage of an instrument or the evacuation of urine, the momentary application of nitrate of silver is a most valuable remedy. I succeeded in curing, by two applications, an intractable case of this kind, where the patient had been long needlessly tormented with the introduction of bougies, by a surgeon of repute.

* This method is also adapted to cases of very thin valvular stricture, almost membraniform, which the sound or bougie passes with a slight jerk, and beyond which the resistance ceases entirely to be felt.

while to the other (*c*) is attached a little platinum cup (*d*), for holding the fused nitrate of silver. The cup cannot pass beyond the rim of the ferrule. The chief improvement in this instrument is the adaptation of the spiral.

It is introduced containing the rod (*b*), whereby the orifice is closed so as to present a hemispherical surface. As soon as it has arrived at the stricture, the rod is withdrawn, to make way for the capsule with the nitrate of silver. While this is being done, the end of the canula must be kept steadily against the stricture. The nitrate of silver now in contact with the part, is to remain from 30 to 60 seconds, and is then to be removed; and after depressing the urethra for a reason formerly assigned, the canula may be taken out. To ensure success, it is of importance that the latter be large enough to fill the canal.

When thus cautiously applied, we have no reason to dread the disastrous consequences which have attended its indiscriminate and injudicious employment according to the old method. With that dangerous weapon, the armed bougie, false passages, hæmorrhage, intense irritation, severe paroxysms of fever, and retention of urine, have been repeatedly produced; but here the action of the remedy is wholly confined to the affected part, and is thus exempt from peril or uncertainty. After having submitted it to the test of ample experience, I can confidently affirm that I have never known it occasion ought beyond a little heat in the part, and a slight discharge from the urethra, sometimes tinged with blood. Here, as in every other instance, the first effects produced are a change in the sensibility, and an augmentation of the capillary circulation, followed by a softening down of the texture to which the agent has been directed; and so long as it is limited to modify the vital properties, the results are favourable. The application may be repeated every five days.

The following case is adduced, in corroboration of the practice:—On the 29th of March last, I was requested by Mr. Hering, a gentleman practising in Foley Place, to see Mr. D——, labouring under obstinate stricture. This patient is 46 years of age. He has had gonorrhœa twice or thrice; the last time was in the year 1830. Twelve months prior to that date, he was obliged, on returning from a hot climate, to submit to treatment for some obstruction of the urinary passages. For two or three years back he has been subject to irritation of the urethra, accompanied with a gleety discharge. When I saw him, he complained of frequent calls to make water, which he voided in a forked, twisted, and small stream. On endeavouring to introduce a small or moderate-sized bougie, it was arrested by a spongy substance, and gave rise to pain and hæmorrhage. I may observe, that repeated attempts had been made to effect a cure by means of bougies previously, but in vain. On more minute examination, I found the stricture was situated about five inches and a half from the external meatus; there was, in addition, a slight narrowing, about three inches and a half from the same point. Having determined on the antero-posterior application of the nitrate of silver, I commenced at once with the principal stricture, in the manner above described, renewing the practice at suitable intervals for a few weeks. During this period, the patient was so little incommoded as to be able to return home to the country each time, and pursue his ordinary avocations. On the 20th of May, I passed with ease a No. 4 gum-elastic bougie; and, in the course of other eight days, a No. 8 gum-elastic sound, *à courbure naturelle*, having previously discontinued the use of the nitrate of silver. Since then I have occasionally introduced, and always with the utmost facility, the soft ivory bougies, both strictures having quite disappeared.

From the preceding observations it appears that, under ordinary circumstances, stricture may be cured without subjecting the patient to pain or inconvenience.

The most efficient means of relieving the severer forms of retention of urine, connected with this disease, I propose to consider in another paper.

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Bedford Square, July 17, 1839.

WILSON AND SON, PRINTERS, 57, SKINNER STREET, LONDON.